

A1
CONC
id

between the photodiodes of the photodiode array so that the spectrophotometer and spectrophotometry method primarily measures light intensities of incident light by the photodiode array, and when precisely moves the photodiode array using the drive by the distance equal to the physical interval between photodiodes of the photodiode array, measures the light intensities of the incident light at desired positions corresponding to the intervals.

IN THE CLAIMS:

Replace claims 1-9 and 11 by the following claims 1-9 and

11:

1. (Amended) A spectrophotometer, comprising:

a light source used for emitting a light beam having a predetermined wavelength range;
a light guide for guiding the light beam from the said
5 light source to a target sample;

a spectrometer head including:

a light diffractor for diffracting the light beam transmitted through the target sample to produce optical spectra,

a light reflector for reflecting the diffracted
10 light from the light diffractor,

a light intensity measuring arrangement for
measuring intensity of incident light reflected by the light

reflector,
a drive for reciprocating the light intensity
15 measuring arrangement within a predetermined range, and
a stop for limiting a reciprocating movement of
the light intensity measuring arrangement; and
a signal-processing unit used for reproducing a
distribution of light intensities measured by the light intensity
20 measuring arrangement of the spectrometer head.

A2
2. (Amended) The spectrometer according to claim 1,
wherein said light guide comprises a multimode optical fiber.

3. (Amended) The spectrometer according to claim 1,
wherein said light diffractor comprises a reflective diffraction
grating.

4. (Amended) The spectrometer according to claim 1,
wherein said light reflector comprises a concave mirror.

5. (Amended) The spectrometer according to claim 1,
wherein said light intensity measuring arrangement comprises a
photodiode array, with a plurality of photodiodes linearly
arrangement on a longitudinal mount at regular physical
5 intervals.

6.¹ (Amended) The spectrometer according to claim 1,
wherein said drive comprises a piezoelectric drive unit
physically expandable or contractible in accordance with a level
of applied voltage.

A2
7. (Amended) The spectrometer according to claim 1,
wherein said drive comprises:

a bimorph piezoelectric drive plate physically
expandable and contractible in accordance with a level of an
5 applied voltage; and

a bimorph piezoelectric fixing plate cemented together
with said bimorph piezoelectric drive plate, said bimorph
piezoelectric fixing plate being physically expandable and
contractible in accordance with the level of the applied voltage.

8. (Amended) The spectrometer according to claim 1,
wherein said stop comprises two stoppers arranged at
predetermined positions around opposite ends of the light
intensity measuring arrangement of the spectrometer head in a
5 moving direction of said light intensity measuring arrangement so
as to limit reciprocating movement of the light intensity
measuring arrangement.

9. (Amended) The spectrometer according to claim 6,

A²
Concild

wherein a displacement amplifier is attached to said piezoelectric drive unit for amplifying a displacement of the piezoelectric drive unit.

11. (Amended) A spectrophotometry method using a spectrophotometer with a drive, comprising the steps of:

a light transmitting step of guiding a light beam from a light source to a target sample through a multimode optical fiber so as to allow the light beam to be partially transmitted through said sample;

a light diffraction step of receiving the light beam, transmitted through said sample, into a reflective diffraction grating, thus diffracting the light beam into discrete wavelengths to produce optical spectra;

a light reflection step of reflecting the optical spectra of the diffracted light beam by a concave mirror to a photodiode array;

a second intensity measurement step of moving the photodiode array using the drive by a distance equal to the physical interval between photodiodes of said photodiode array and measuring light intensities of the incident optical spectra at desired positions corresponding to said intervals; and

an intensity distribution reproduction step of transmitting spectrometric analysis data, obtained at the first

*A³yd
CONC*

and second intensity measurement steps, from the photodiode array to a signal-processing unit, and reproducing a light intensity distribution of the target sample by the signal-processing unit.
